SANTA CRUZ BIOTECHNOLOGY, INC.

TACE siRNA (m): sc-36605

BACKGROUND

Tumor necrosis factor β (TNFβ), also known as lymphotoxin, is a pleiotropic cytokine. TNFα, also known as cachetin, is a cytokine that binds to the same receptors, producing an array of effects similar to those of TNFβ. TNFβ and TNFα share 30% amino acid homology and have similar biological activities. TNFβ is produced by activated lymphocytes, including $CD4^+$ T helper cell type 1 lymphocytes, $CD8^+$ lymphocytes and certain B lymphoblastoid cell lines. TNFα is produced by several different cell types, including lymphocytes, neutrophils and macrophages. TNFβ and TNFα can modulate many immune and inflammatory functions while having the ability to inhibit tumor growth. TACE (for TNFα converting enzyme) is a metalloproteinase that cleaves the membrane-bound TNFα precursor to release soluble TNFα.

REFERENCES

1. Nedwin, G.E., et al. 1985. Human lymphotoxin and tumor necrosis factor genes: structure, homology and chromosomal localization. Nucleic Acids Res. 13: 6361-6373.
2. Aggarwal, B.B., et al. 1985. Human tumor necrosis factor. Production, purification, and characterization. J. Biol. Chem. 260: 2345-2354.
3. Vilcek, J., et al. 1991. Tumor necrosis factor. New insights into the molecular mechanisms of its multiple actions. J. Biol. Chem. 266: 7313-7316.
4. De Togni, P., et al. 1994. Abnormal development of peripheral lymphoid organs in mice deficient in lymphotoxin. Science 264: 703-707.
5. Qin, Z., et al. 1995. Tumor growth inhibition mediated by lymphotoxin: evidence of B lymphocyte involvement in the antitumor response. Cancer Res. 55: 4747-4751.
6. Black, R.A., et al. 1997. A metalloproteinase disintegrin that releases tumour necrosis factor α from cells. Nature 385: 729-733.
7. Moss, M.L., et al. 1997. Cloning of a disintegrin metalloproteinase that processes precursor tumour necrosis factor α. Nature 385: 733-736.

CHROMOSOMAL LOCATION

Genetic locus: Adam17 (mouse) mapping to 12 A1.3.

PRODUCT

TACE siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TACE shRNA Plasmid (m): sc-36605-SH and TACE shRNA (m) Lentiviral Particles: sc-36605-V as alternate gene silencing products.

For independent verification of TACE (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36605A, sc-36605B and sc-36605C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TACE siRNA (m) is recommended for the inhibition of TACE expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TACE gene expression knockdown using RT-PCR Primer: TACE (m)-PR: sc-36605-PR (20 µl, 502 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, Y. and Sul, H.S. 2006. Ectodomain shedding of preadipocyte factor 1 (Pref-1) by tumor necrosis factor α converting enzyme (TACE) and inhibition of adipocyte differentiation. Mol. Cell. Biol. 26: 5421-5435.
2. Rego, S.L., et al. 2014. Breast tumor cell TACE-shed MCSF promotes pro-angiogenic macrophages through NFκB signaling. Angiogenesis 17: 573-585.
3. Lee, H.S., et al. 2014. Shedding of epithin/PRSS14 is induced by TGF-β and mediated by tumor necrosis factor-α converting enzyme. Biochem. Biophys. Res. Commun. 452: 1084-1090.

RESEARCH USE

For research use only, not for use in diagnostic procedures.